DE-ABCM User Manual

DUALi Inc.

Document Version: 1.02

Last Revised Date: 8TH August 2011

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We have our development center in South Korea to provide technical support. For any technical assistance can contact our technical support team as below;

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Revision History

- 2009.04.09 : Issued first
- 2011.07.18 : Add PCB dimension
- 2011.08.08 : Add SAM card connectors' specification

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1 Summary

Smart Card Interface	Contactless Smart Card (ISO 14443 A/B), MIFARE, FeliCa 2 SAM CARD (ISO7816, T=0,T=1)
Host Interface	USB 2.0 Full Speed (12Mbps), also support USB 1.1 RS-232, 57600bps
Host Communication	PC/SC or Proprietary
CPU	ARM 32-bit Cortex-M3(72MHz), 64Kbytes Flash, 20Kbytes SRAM
Power Voltage	5V, USB Bus powered
Current	MAX 300mA depend on antenna size
Connection	4pin * 2mm for USB 5pin * 2mm for RS-232
Size	70(W) * 45(L) * 8(H)mm
Antenna Matching	Direct matching
Certification	CE, FCC, IC Certified / RoHS compliance
Operating Temperature	-20~60℃

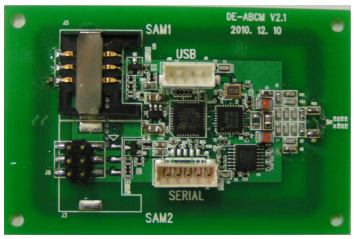
2 Structure

2.1 The Structure of equipment

- DE-ABCM (RF module) itself contains all circuits include antenna, SAMs and connectors.

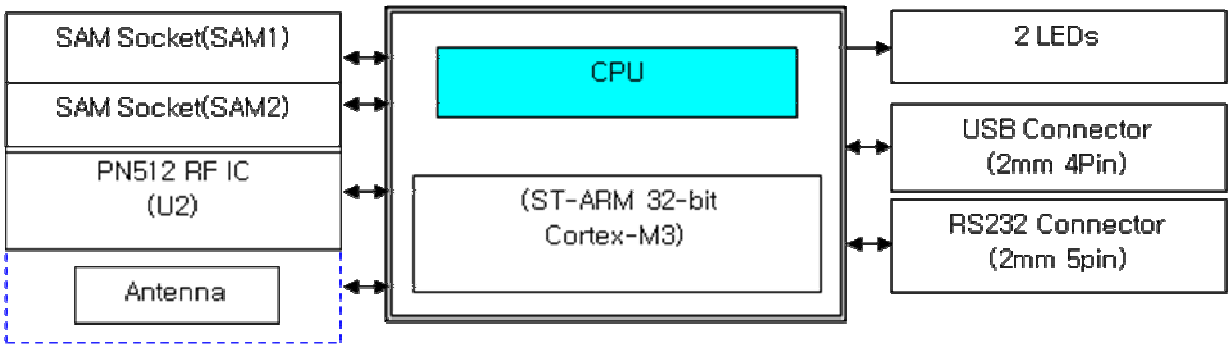
(Host PC)

(RS-232) | (USB 2.0)



(DE-ABCM)

2.2 The block diagram of main Module, sub board(Epass12) and antenna



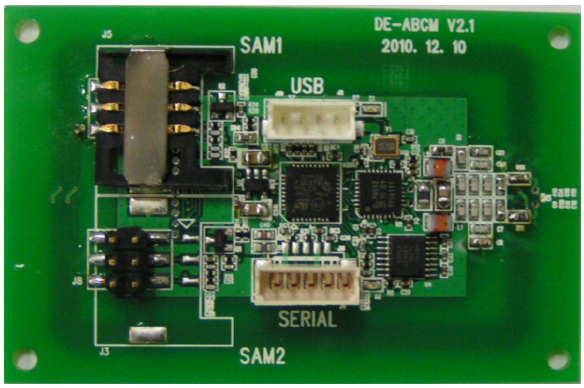
2.3 Description of main Module

CPU : 32bit RISC CPU, It is stm32f103 which is ARM-based 32-bit MCU with Flash, USB, CAN, seven 16-bit timers. This CPU has 64Kbyte Flash memory, 20Kbyte SRAM, 2 UART, USB 2.0 interface.

- PN512 RF IC : This Philips IC can control RF card like MIFARE card, type A/B card and FeliCa card simultaneously.
- RS-232 Driver : It's a Communication part for RS-232 communication.
- USB Connector : It's a Communication part for USB communication.
- SAM card control part: It can control 2 SAMs. And each slot can be operated independently.
- Status LED : It has 2 LEDs to display status of communication and RF card status.

3 Description of Surface

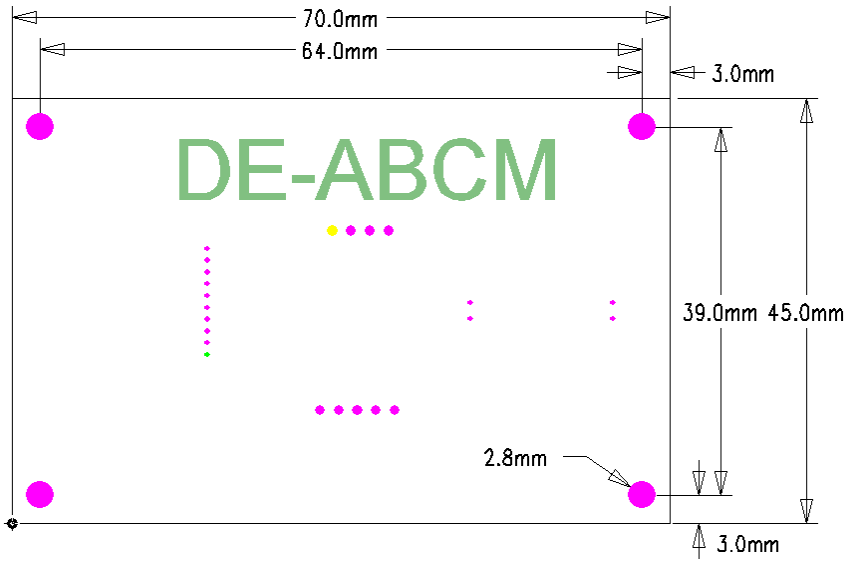
3.1 The picture of device surface



There are no parts at bottom. But there is a space for optional LEDs.

3.2 The size of equipment surface

- DE-ABCM : 70(W) * 45(L) * 8(H)mm
- Thickness (PCB) : 1.6T



4 Connector pin assignment

4.1 USB Connector

[J2] (4Pin 2.0mm) -> PC USB Port

Pin No.	Description
1	VCC(DC5V)
2	USB D+
3	USB D-
4	GND

4.2 RS-232 Connector

[J4] (5Pin 2.0mm) -> RS-232 Port of controlling device

Pin No.	Description
1	VCC(DC5V)
2	TxD(RS-232 or TTL)
3	RxD(RS-232 or TTL)
4	GND
5	External I/O

Communication between RS-232 or TTL should be decided before make order.

Its default communication methods are RS-232 and USB.

4.3 SAM1 Connector

[J9] (SAM Socket, TM6090-06-G) -> SAM

Pin No.	Description
1	VCC
2	RESET
3	CLOCK
4	GND
5	NC
6	IO

It is for ISO-7816 IC Card(SAM) Communication.

4.4 Header for IC CARD Connector and IC CARD Detection

[J8] (6Pin 2.54mm, Box Header 2*3) -> IC CARD Connector

Pin No.	Description	Pin No.	Description
1	VCC	4	GND
2	RESET	5	NC
3	CLOCK	6	IO

[J4] (5Pin 2.0mm) -> SAM2 Detection (Optional for DataCard Version)

Pin No.	Description
1	VCC(DC5V)
2	TxD(RS-232 or TTL)
3	RxD(RS-232 or TTL)
4	**GND**
5	**SAM2 Detection**

5 Description of electricity

5.1 The Description of power

- Input power : 5V (USB Bus Powered)

5.2 The using electric current

- Normal 5V, 150 mA under
- MAX 5V, 200 mA under

5.3 The Description of USB communication

- USB V2.0 FULL SPEED (12Mbps)

6 Description of Function

6.1 Protocol Specification

Refer to protocol specification for detail function.(provide on request)

6.2 Control Code Specification

Refer to control code specification for detail function.(provide on request)

6.3 Download

Refer download manual.(provide on request)

7 Property

7.1 Environment to use

- Temperature to use : -20 ~ 60 ℃
- Humidity to use : 30 ~ 90 % (relative humidity)

7.2 Environment to keep

- Temperature to keep : -20 ~ 80 ℃
- Humidity to use : 30 ~ 90 % (relative humidity)

8 Warning and Notice

- For indoor use only.
- This product is affected by an element like metal or Magnetism. So one has to take precautions.
- This device is not waterproof.

Warranty & Service

‣ Warranty and Repair service

- DUALi Inc. warrants to the original consumer or other end user that this product, DE-ABCM, is free from defects in materials and workmanship for a period of 1 year from the date of purchase.

※ **Note** Warranty/non-warranty repair fees do not include any shipping charges.

‣ The damages(defaults) prescribed below are NOT to be covered by warranty.

- User's misuse of part/component.
- Fault by the unqualified user's own intention of repairs.
- Product's inspection requirement.
- Adding certain functions or extension of system.
- Fault by User's misuse against the product's manual.

***Please contact our service team for the technical/ sales supports.**

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